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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,828	11/25/2003	Koichiro Sugai	81716.0114	4773
26021	7590	05/03/2007		
HOGAN & HARTSON L.L.P. 1999 AVENUE OF THE STARS SUITE 1400 LOS ANGELES, CA 90067			EXAMINER LEE, CYNTHIA K	
			ART UNIT 1745	PAPER NUMBER
			MAIL DATE 05/03/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/721,828

**Applicant(s)**

SUGAI ET AL.

**Examiner**

Cynthia Lee

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 2-6 and 12-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 7-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/25/03, 4/20/05</u> . | 6) <input checked="" type="checkbox"/> Other: <u>IDS: 8/29/05</u> .                     |

### ***Election/Restrictions***

Applicant's election of species 8, figure 9, claims 1, 7, 8-11 in the reply filed on 2/12/2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

The Examiner agrees with the Applicant with the generic claims pointed out in the Response.

### ***Priority***

Acknowledgement has been made of applicant's claim for priority under 35 USC 119 (a-d) or (e). The certified copy has been filed on 11/25/2003.

### ***Information Disclosure Statement***

The Information Disclosure Statement (IDS) filed 11/25/2003, 4/20/2005, 8/29/2005 has been placed in the application file and the information referred to therein has been considered.

### ***Drawings***

The drawings received 11/25/2003 are acceptable for examination purposes.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 7-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, it is unclear how "a plurality of

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concavities" (plural) can accommodate "a membrane electrode assembly" (singular). In claim 1, it is unclear what is meant by "another surface." Does it mean "the concavity" has two principal surfaces? Further, in claim 1, the recitation "the concavity" is unclear because it is unclear as to which concavity out of the pluralities of concavities it refers to. Further, the recitation "a bottom surface of one cavity" and "a bottom surface of another concavity" are unclear if those refer to "the bottom surface of the concavity."

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka (US 2003/0012999) in view of Haluzak (US 7018734), Bronoel (2001/0006745), and Nishida (US 5686197).

Yoshioka discloses a fuel cell casing comprising: a base body having a concavity for housing a membrane electrode assembly formed on one surface thereof (15 in Fig. 1), the membrane electrode assembly having a first electrode and a second electrode disposed on one principal surface and another principal surface thereof, respectively; a first fluid channel formed so as to extend from a bottom surface of the concavity facing the one principal surface of the membrane electrode assembly to an outer surface of the base body (41 in Fig. 1); a first wiring conductor having its one end disposed on the bottom surface of the concavity facing the first electrode of the membrane

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electrode assembly (17 in Fig. 1), and its other end led out toward the outer surface of the base body; a lid body mounted on the one surface of the base body near the concavity so as to cover the concavity (14 in fig. 1), for air-tightly sealing the concavity; a second fluid channel formed so as to extend from one surface of the lid body facing the other principal surface of the membrane electrode assembly to an outer surface of the lid body; and a second wiring conductor having its one end disposed on the one surface of the lid body facing the second electrode of the membrane electrode assembly, and its other end led out toward the outer surface of the lid body (16 in fig. 1). The two adjacent cells are connected by individual current collectors connected by a connection groove 47 (applicant's third wiring conductor) See Fig. 1 and [0081].

Yoshioka does not disclose that the base body is made of ceramics. Yoshioka discloses that the base body is made of metal, resin, or composites [0087]. However, Haluzak teaches a fluid passage substrate can be made of multi-layer ceramics (7:8-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute Yoshioka's base body made of metal, resin, or composites with Haluzak's multi-layer ceramic fluid distribution substrate because the casing of Yoshioka and the substrate of Haluzak are both fluid distribution substrates and it has been held by the court that the selection of a known material based on its suitability for its intended use is *prima facie* obvious. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

Yoshioka modified by Haluzak does not disclose that the internal and external connection terminal is formed in the base body or the lid body (applicant's claims 8 and

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9). However, Bronoel teaches a bipolar collector for a solid polymer electrolyte fuel cell whereof the electronic conduction is provided by uniformly distributed metal cylinders and hereof the tips penetrate into the electrodes. See Abstract. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute Yoshioka's current collector plates with Bronoel's metal cylinders for current collection for the benefit of eliminating an additional component in Yoshioka's fuel cell casing and reducing its weight.

Yoshioka modified by Haluzak and Bronoel does not teach that the third wiring conductor formed in the base body is on a bottom surface of one concavity and another concavity (applicant's claim 1). However, Nishida teaches of establishing electrical connection of multiple cells using conductive wires (see 61a, 61b, 61c, 61d, 61x, 61y in fig. 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to electrically connect the power generating elements 11 and 12 of Yoshioka using conductive wires for the benefit of connecting the power generating elements to produce power. It is noted that modifying Yoshioka modified by Nishioka with Bronoel would form a third wiring conductor on a bottom surface of one cavity and another cavity because the power generating elements 11 and 12 are located on the bottom of their respective cavities.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka (US 2003/0012999) in view of Haluzak (US 7018734), Bronoel

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(2001/0006745), and Nishida (US 5686197) as applied to claim 8, further in view of Bostaph (US 2003/0031908).

Yoshioka modified by Haluzak, Bronoel, and Nishida teaches all the elements of claim 1 and are incorporated herein. Yoshioka modified by Haluzak, Bronoel, and Nishida does not teach a piezoelectric pump disposed partway along the first or second fluid channels. However, Bostaph teaches of using a piezoelectric pump to supply ambient air to a flow field [0022]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a piezoelectric pump to the fuel cell of Yoshioka modified by Haluzak, Bronoel, and Nishida for the benefit of exerting force to provided adequate air from the ambient to the fuel cell.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ckl

Cynthia Lee

Patent Examiner



SUSYTSANG FOSTER  
PRIMARY EXAMINER